

NBA certification

“You are the creator of your own destiny” — Swami Vivekananda

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Abstract: The accreditation of an engineering degree is crucial since, without it, the degree awardee might not be allowed to operate as an engineer legally in most countries across the world as well as in its own. Examining an engineering degree course to see if it satisfies the criteria established by the Engineering or Technology Council is known as accreditation. In every country, there is a regulatory authority to do so may validate a degree. Accredited engineering degrees provide a crucial seal of confidence to students, their parents and advisers, and employers that the curriculum satisfies the rigorous criteria set by the engineering profession. The regulatory body determines the requirements through some experts, who examine degrees and decide whether to provide accredited degree status. Being esteemed stakeholders, employers have a significant say in determining whether a student has the necessary background knowledge, comprehension, and abilities to support their application for a later professional registration after completing an authorized degree course. Internship, Placement, Student-Faculty ratio, delivery, examinations, and outcome-based education, along with others, are considered for assessment that declares accreditation status.

Keywords: Accreditation, NBA, Higher Education, Engineering Education, Standard in Education, Quality Education, Washington Accord, Program Outcomes, Outcome-based Education

1. Introduction

A self-declaration is always mooted unless accredited by an authorized agency. The Oxford Dictionary defines accreditation as “official approval by an organization stating that somebody/something has achieved a required standard.” The regulator certifies it if prescribed standards are achieved and maintained consistently and persistently over a considerable period [1]. Accreditation refers to the initial and continuous approvals given to higher education institutions or courses the requirements set by nationally recognized accrediting organizations are met. The certification organization is a non-profit responsible for overseeing its members' academic and administrative quality, which can be the entire organization or only a portion. The National Board of Accreditation (NBA) accredits technical programs like engineering and management in India, while National Assessment and Accreditation Council (NAAC) accredits general schools and universities.

2. International Accords

The third era of globalization started around 1989, and the Washington Accord was also signed in 1989. Globalization is inescapable, and its acceptance all over the world is overwhelming. Because of globalization, the world is considered a global village. Collaboration for business,

study, culture, economics, and competition for survival and getting more and more is evident as every day progresses. Anyone desirous to exploit and engulf the advantages of globalization should be well-equipped, skilled, and enlightened enough to win over any collaboration or competition. With this in mind, standardization was irresistible, and people started thinking about having a common operating procedure followed worldwide, resulting in global pass-out students. In 1989 the first agreement was signed as the Washington Accord, and the signatories were the United States of America, the United Kingdom, New Zealand, Ireland, Canada, and Australia. Throughout the decades, numerous meetings and statements have taken place to achieve the current status of worldwide engineering and computing program accreditation. Some of those are worth mentioning, as shown in Fig. 1.1.

Washington Accord

There must be some formal agreement to recognize degrees or diplomas globally with several conferences and deliberations in international meetings. Initiated in the UK by the Engineering Council, the first of its kind, the Washington Accord, signed in 1989, is an agreement between authorities from six countries, namely the USA, UK, Ireland, Canada, New Zealand, and Australia, responsible for accrediting or recognizing tertiary-level engineering diplomas, within their jurisdictions and opted to collaborate in professional engineer mobility. Each signatory recognizes qualifications accredited or recognized by other signatories as substantially equivalent to qualifications accredited or recognized in its own jurisdiction[4].

Sydney Accord

Seven initial signatories signed the Sydney Accord in June 2001, representing Australia, Canada, Hong Kong, Ireland, New Zealand, the United Kingdom, and South Africa. The Sydney Accord focuses primarily on engineering technology-related university programs or the academic programs included in the foundation for engineering technology practice. This complemented the Washington Accord, emphasizing engineering and technology[4].

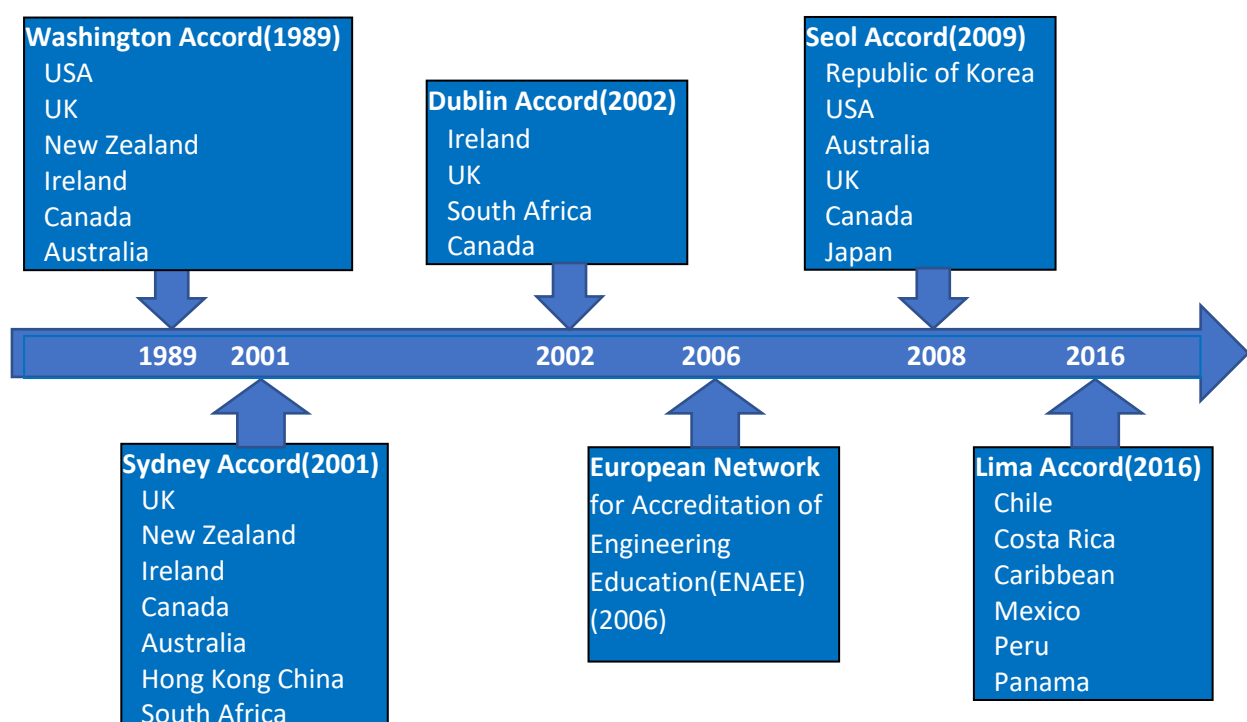


Fig. 1.1 Chronological view of various International Accords

Dublin Accord

The Dublin Accord (DA), a treaty that establishes equivalence in the accreditation of tertiary technical engineering qualifications, was signed in May 2002 by the Signatories Ireland (Engineers Ireland), Canada (CCPE), South Africa (ECSA), United Kingdom of Great Britain (ECUK). From four countries, four professional organizations agreed to recognize the criteria that underpin the awarding of Engineering Technician designations. The Dublin Accord followed almost the same methods as the Washington and Sydney Accords[4].

European Network for Accreditation of Engineering Education (ENAE).

ENAE was established on February 8, 2006, by 14 European engineering education associations during the completion of the first EUR-ACE® project. EUR-ACE® is a system of accreditation that creates "standards" for identifying high-quality engineering degree programs on a European level. It grew out of ESOEPE, the "European Standing Observatory for the Engineering Profession and Education," established on September 9, 2000. ENAE focuses on engineering education, which is becoming increasingly important in the global economy. ENAE's mission is to improve and promote the quality of education for engineering graduates, achieve professional agility, and improve individuals' and groups' capacity to meet economic and social needs[5].

Seoul Accord

The Seoul Accord was launched on December 6th, 2008, and signed on June 20th, 2009, under the initiative and leadership of six Founding Signatories: ABEEK (Republic of Korea), ABET Inc. (USA), ACS (Australia), BCS (United Kingdom), CIPS (Canada), and JABEE (Japan). Its goal is to establish mutual recognition of equivalent professional preparation for graduates of educational programs in computing and IT-related disciplines accredited by the member agencies, resulting in increased mobility of practitioners, which is open to all equivalent accreditation agencies and/or institutions worldwide[6].

Lima Accord

The Lima Accord was launched in Lima in September 2014 as part of the 1st IEEE Region 9 Latin American Accreditation Body Summit. Lima Agreement's goal was to define the Agreement's Rules and Procedures, starting with the definitions of the graduation attributes that will serve as the foundation for engineering training promoted by regional accrediting agencies. The signatories have agreed to collaborate. Once the programs have been accredited, the significant equivalence is acknowledged among the signatory bodies, promoting professional engineering mobility and mutual recognition of degrees. Affiliation to the Accord is voluntary and limited to Latin America and the Caribbean, with new members requiring the approval of two-thirds of the Agreement's signatory nations after a formal request for membership[7].

3. Why accreditation?

Graduating from a top NBA-accredited college will help students gain higher recognition from employers and organizations for job opportunities and research. This is about maintaining a standard and about NBA accreditation helping to disseminate a better perception to peers and the relevant society component. However, other than these perceptions and reputation, some restrictions are also imposed by the AICTE from time to time. If there is no NBA accreditation, there should be issues relating to (i) increasing intake of an existing program or (ii) blocking of starting a new program. If there is no increase in intake and not allowed to start new programs, it is a disaster for any institution as it can't expand unless NBA accreditation. This should be difficult for any institution as it can't grow and continue with a reputation of inferiority. In this era of competition, institutions always establish their superiority by numerous rankings and accreditations, but if some institution doesn't have an essential accreditation, that should be a self-created face-loss situation. It is the ultimate responsibility of the institution to get all kinds of accreditations because this accreditation would not only help existing students to live professional life with their heads high, but students who have passed long back won't risk losing their jobs.

4. Categories of accredited programs

Categorization of programs may be understood in two orientations: discipline-wise and level-wise. Discipline-wise includes Engineering, Architecture, Management, Pharmacy, and MCA. Level-wise categorization of programs is a diploma, UG, and PG. In Engineering, there is again UG Tier-I and Tier-II categorizations exist. The NBA offers a two-tier accreditation system for Technical Programs, such as undergraduate engineering programs. The Tier-I accreditation system applies to academically autonomous institutions, university departments, constituent colleges of universities and autonomous colleges or institutions that offer engineering/technology programs with their curriculum, syllabus, and evaluation systems.

On the other hand, Tier-II institutions are non-autonomous institutions, such as colleges and technical institutions affiliated with a university, and have limited or almost no liberty to design their curriculum, syllabus, and evaluation systems. In Tier-II institutes, the syllabus is dictated by the university, and in some situations, the college may be applying for accreditation, but its affiliating university is not yet in the process of accreditation. In that case, the syllabus followed by the institute does not trace OBE. However, affiliated institutes design some additional materials and the prescribed syllabus to have an essence of OBE like CO, CO-PO mapping, attainment calculation procedures, project allocation procedures, and rubrics for some evaluation. However, in most situations, the effort of the affiliation college remains obscure as a significant portion of students' evaluation is done by the affiliating university.

In most cases, it has been observed that students are performing well in internal evaluations done by the college and not doing that well in university examinations. So, the OBE practice, if followed in the affiliating college only, the evaluation results may not reflect the actual standard and quality of the institute under consideration. The best situation is that the university and affiliated colleges are accredited or at least apply or prepare for accreditation such that the OBE practice is rigorously followed in the affiliated institutes. Although accreditation of any

course is expected and desirable, only the Undergraduate Engineering Programs offered by Tier-I institutions accredited by the NBA fall under the Washington Accord (WA) ambit.

5. Pre-qualifier

The National Board of Accreditation (NBA) introduces a Pre-Qualifier for institutions to process Accreditation applications for Higher Education. Institutions can apply for accreditation in up to five programs through a single application on the e-NBA portal. Management and MCA programs can be clubbed with other programs in a single application. If all the pre-qualifiers applied through an application are not approved, then the application is not processed further, and the institution is informed accordingly. Some of the pre-qualifiers are essential means those are to be satisfied. Otherwise, there will be no further processing. Some essential pre-qualifiers are the years passed out, years of AICTE approval, the stipulated admission threshold (intake), and faculty students ratio. Some desirable qualifiers are also checked, like HoD with Ph.D., availability of Academic audit committee, placement percentage, etc.

Pre-qualifier relieves both the parties of the application and accreditors that if some essential qualifiers are not complied with and detected during visits, it would be a waste of money, workforce and effort. So, the pre-qualifier is an integral part of the accreditation and should help both sides not to be embarrassed because of unpreparedness or non-availability of some essential attributes.

6. Self Assessment Report(SAR) and its composition

Self-assessment is an analytical process institutions use to evaluate their operations and academic capabilities. Institutions define (i.e., assets) and maybe attribute quality or worth to (i.e., evaluate) the qualities of teaching-learning processes and outcomes using various procedures and methodologies. Additionally, it refers to the capacity for self-awareness, the readiness to consider the results of one's actions and apply those insights to future conduct and thought.

Self Assessment Report(SAR) can be considered a detailed application form for accreditation. Thanks to the NBA, they provide a detailed format for SAR to be submitted for each program. Otherwise, it would have been difficult for several institutes that don't have extensive experience and facilities to invest in generating an excellent SAR. Because of this format, institutes with low resources could compete with all others and create accreditation when they fill up the SAR based on the teaching-learning practice and resources. Every program looking for accreditation that falls under the ambit of the NBA should download the SAR format from the NBA website[1] to submit a mandatory document needed for consideration of NBA accreditation. SAR is to be filled up based on facts and evidence. In NBA accreditation, any data is considered as no data unless supported by documentary evidence(s). The evaluators can easily detect any inflated information as they are experienced. Moreover, the evaluators may not consider any fact or actual practice without documentary evidence and can't be challenged without valid supporting documents.

Every SAR is designed for the respective program, carefully considering various aspects of the concerned program. However, in general, if we look into the SAR and total markings, we find

three categories of criteria: Outcome-based Education related(40%), Resources and facilities(25%), and Contributions and accomplishments by the students and faculty members(35%). Resources and facilities can be created within a brief span of time, but the other two categories need time and should be in practice for at least four years to have a confidence score for accreditation. Details on SAR are discussed in Chapter 3.

8. NEP and NBA

By critically examining the SARs of the same UG program for Tier-I and Tier-II, it is evident that the difference in marking matters in the definition of Tier-I and Tier-II. Tier II is different from Tier-I because Tier II institutes are affiliated with some universities and don't enjoy the freedom of designing course curricula, setting question papers, and evaluating answer scripts and project reports. The total OBE practice evaluation is jeopardized because of the affiliation of the Tier-II institutes. National Education Policy 2020 will free the Tier-II institutes from the shackles of affiliation, and they can have their design to practice outcome-based education. This can't be done overnight, so NEP-2020 has set a deadline of 2035 to abolish this affiliation system. For any institution, a university, or a college, to exist, either they must be accredited or wind up. Considering the NEP-2020, most of the institutions are going to be large multidisciplinary universities and colleges that will facilitate the move towards high-quality holistic and multidisciplinary education

Engineering institutions like IITs will move towards more holistic and multidisciplinary education with more arts and humanities. Arts and humanities students will aim to learn more science, and all will try to incorporate more vocational subjects and soft skills. Every program of large multidisciplinary universities should be accredited, and this accreditation is for each program. Any institution may do well in all programs, but the programs they perform well should get accreditation. If not done program-wise, some excellent courses may suffer the average markings. Some institutions may get an advantage, but that won't accurately represent the excellence.

9. What if not accredited?

Any college, if not accredited, would suffer substantial growth and expansion. Colleges may not enjoy benefits from AICTE like increasing intake, introducing new courses, applying for funds like MODROB, TAPTEC, and research project funding from government funding agencies. Universities enjoy the freedom to introduce new courses and increase intake, but getting AICTE approval may become tough. Also, credibility is in the eye of the beholder. Some people would look down on your degree if it is from a non-accredited institution.

Considering going abroad, a degree from a non-accredited institution may suffer a lot. There may be possible derecognition of degrees, specifically Undergraduate Engineering degrees, which falls under the Washington Accord, and aspirants may not get a job. Even those already on the job may be sacked or face difficulty switching jobs.

Universities abroad may reduce the number of credits if the NBA does not accredit the UG college, and the candidate will ultimately fall short of the 20 or so credits needed to enroll in some course. This shortfall can be overcome by working in a related field for about two years

after graduating from a non-accredited UG program. In contrast, if the UG college is NBA approved, a student can enroll in any international university as a fresher without prior work experience. The impact is time-consuming rather than economical, as is evident. Therefore, in the future, students would always prefer to study in colleges where programs are accredited by the NBA, which would be a reason that UG programs without accreditation may lose good students and also may face less intake and closure of some programs by the AICTE or by the college itself as the execution of the program would not be profitable. However, there may not be an immediate threat right now, but over time NBA accreditation will become a requirement, and only graduates from colleges with NBA accreditation will be permitted to work anywhere in the world.

10. Conclusion

Accreditation is a tool for quality control and improvement for sustainable development. Attending a college equipped with active and learned teachers, influential research, relevant and up-to-date courses, and quality standards is essential to secure a job or higher education in engineering, technology, or management. NBA accreditation would help students and society have the peace of mind that accredited institutes are delivering and continuing to deliver quality education. Following Washington and other Accords, the NBA ensures the quality assurance programs in colleges and universities by a regular vigil on high-quality instruction using effective and optimal teaching and learning techniques. India has undoubtedly started to boost its educational standards to compete with the rest of the globe. Impressive efforts by the various organizations established by the Government of India have started to show encouraging results, indicating that our education is improving as time passes.

NBA

*Not just data, not a bunch of documents
Neither collection of information for the last three years
More data is always good data; try to get collected
Without documentary evidence, none are accepted*

*Faculty and student both should perform well
Marks are accurate for those; nobody can curtail
Facilities created for curriculum are not enough
Additional resources mobilized or evaluators are tough*

*DBE is a hard nut to crack; everybody feels confident
Evaluators are not satisfied; on every front, they are defiant
"DBE is not understood, or it needs improvement"
Almost all evaluators' reports essentially contain a comment*

*In every aspect, there is a demand for improvement
Alas, a hike is not possible once it reaches the peak point
The rate of decay could be measured by how significant the fall
Deterioration could be a measure to check the downfall*

Compliance is the main criterion, all getting average score

*Perception is created in two days to decide yes, no, or something more
Hospitality is a good gesture that reflects culture and benevolence in various form
Nothing helps them in persuasion if, in practice, they fail to perform*

In India, accreditation, on the one hand, a vast number of engineering and management institutions have emerged due to the fast expansion in higher education over the last two decades. On the other hand, many quality human resources are generated with world standards having graduate attributes prescribed by global accords. However, the quality issue is still present, and the NBA is committed to serving as a quality assurance and improvement facilitator in such a vast and varied education system dealing with millions of aspirants.

References:

- [1] <https://www.nbaind.org>
- [2] <https://www.ieagreements.org/assets/Uploads/Documents/History/25YearsWashingtonAccord-A5booklet-FINAL.pdf>
- [3] <https://accreditation.org/explore-accreditation/accords>
- [4] <https://www.ieagreements.org>
- [5] <https://www.enaee.eu>
- [6] <https://www.seoulaccord.org>
- [7] <https://limaaccord.org/>
- [8] <https://www.ieagreements.org/accords/washington/signatories/>
- [9] <https://www.nbaind.org/Uploads/general-manual-of-accreditation.pdf>